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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,356	08/15/2001	Tameo Yanagino	107101-00036	8870
4372	7590	06/14/2006	EXAMINER	
ARENT FOX PLLC 1050 CONNECTICUT AVENUE, N.W. SUITE 400 WASHINGTON, DC 20036			MEINECKE DIAZ, SUSANNA M	
			ART UNIT	PAPER NUMBER
			3623	

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/929,356

Applicant(s)

YANAGINO ET AL.

Examiner

Susanna M. Diaz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This non-final Office action is responsive to Applicant's after-final amendment filed April 12, 2006, which has been entered.

A new examiner has taken over prosecution of the instant application.

Claims 1-22 are pending.

2. The previous objection to the declaration is withdrawn in response to Applicant's persuasive arguments.

Response to Arguments

3. Applicant's arguments with respect to the art rejection of claims 1-22 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of McConnell et al. (US 2001/0049690) and Price.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Under the statutory requirement of 35 U.S.C. § 101, a claimed invention must produce a useful, concrete, and tangible result. For a claim to be useful, it must yield a

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result that is specific, substantial, and credible (MPEP § 2107). A concrete result is one that is substantially repeatable, i.e., it produces substantially the same result over and over again (*In re Swartz*, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000)).

In order to be tangible, a claimed invention must set forth a practical application that generates a real-world result, i.e., the claim must be more than a mere abstraction (*Benson*, 409 U.S. at 71-72, 175 USPQ at 676-77). Additionally, a claim may not preempt abstract ideas, laws of nature or natural phenomena nor may a claim preempt every “substantial practical application” of an abstract idea, law of nature or natural phenomena because it would in practical effect be a patent on the judicial exceptions themselves (*Gottschalk v. Benson*, 409 U.S. 63, 71-72 (1972)). (Please refer to the “Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility” for further explanation of the statutory requirement of 35 U.S.C. § 101.)

While claims 1-22 produce a useful and concrete result, the produced result is not clearly tangible. In other words, the result is not recited in such a manner that it has an effect in the real-world. For example, the result is never converted into any output that is clearly conveyed in the real-world nor is it used to effect any real-world actions.

Therefore, claims 1-22 are deemed to be non-statutory.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 2, 4, 6, 13, 15, and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites a "second time-course order record determining means for determining a time-course record of orders with respect to each part and extracting second low-order-rate parts whose order records show order rate to have fallen below a second predetermined level higher than said predetermined level." First, it is not clear whether a second predetermined level would be faster or slower than the predetermined level since the term "higher" is relative. In other words, would faster or slower movement of an item be indicative of a higher predetermined level? Second, the result of this determination step is never used again; therefore, it is not clear what the significance of this step is in relation to the invention as a whole, especially the fact that the second low-order-rate parts have fallen below a second predetermined level higher than a [first] predetermined level.

Claims 15 and 17 are dependent from claim 13 and therefore inherit the same rejections under 35 U.S.C. § 112, 2nd paragraph.

Claims 2, 4, and 6 mirror the functionality recited in claims 13, 15, and 17; therefore, the rejections of claims 13, 15, and 17 under § 112, 2nd paragraph are applied to claims 2, 4, and 6 as well.

Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over McConnell et al. (US 2001/0049690) in view of Price ("How to Prepare Inventory Forecasts for Very Low Demand Items").

McConnell discloses a system for forecasting future orders of parts for products sold to customers, comprising:

[Claim 12] time-course order record determining means for determining a time-course record of orders with respect to each part and extracting low-order-rate parts whose order records show order rate to have fallen below a predetermined level (¶¶ 40, 62, 68, 71, 74, 84 -- Sales, or order, patterns of an item are monitored over time. If the items are moving too slowly, i.e., they are not selling as quickly as expected, in relation to an identified threshold, an alarm is generated);

order occurrence probability distribution determining means for determining from each such order record at least one parameter indicating a characteristic of orders after the order rate fell below the predetermined level, and for classifying the extracted low-order-rate parts into multiple categories and using the parameter indicating the characteristic of orders to calculate for each of the multiple categories an order occurrence probability distribution (¶¶ 40, 62, 68, 71, 74, 84 -- Sales, or order, patterns

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of an item are monitored over time. If the items are moving too slowly, i.e., they are not selling as quickly as expected, in relation to an identified threshold, an alarm is generated; ¶¶ 39, 112, 115, 130-140 -- The sales patterns of an item may be analyzed in relation to various effects, such as price index, promotion index, day-of-week index, competing item promotion index, holiday index, season index, and market conditions index. Items can be categorized by any special effects that may be influencing their sales patterns. This information is used to forecast future sales of the items);

forecasting means for forecasting future number of orders of the low-order-rate parts based on the calculated occurrence rate probability distributions of number of orders during the predetermined period (¶¶ 82, 140, 141, 308 -- Sales forecasts are made for items of interest, e.g., sales are forecasted for the next 24-48 hours in ¶¶ 82 and 140. Sales predictions for the next 24-48 hours based on probability distributions are calculated occurrence rate probability distributions of number of orders during the predetermined period);

[Claim 14] wherein the parameter indicating the characteristic of orders is *at least one* of an *order occurrence interval* and a ratio of number of orders (¶¶ 82, 140, 141, 308 -- Sales forecasts are made for items of interest, e.g., sales are forecasted for the next 24-48 hours in ¶¶ 82 and 140. Sales predictions for the next 24-48 hours based on probability distributions reflect an order occurrence interval);

[Claim 15] wherein the parameter indicating the characteristic of orders is *at least one* of an *order occurrence interval* and a ratio of number of orders (¶¶ 82, 140, 141, 308 -- Sales forecasts are made for items of interest, e.g., sales are forecasted for the

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next 24-48 hours in ¶¶ 82 and 140. Sales predictions for the next 24-48 hours based on probability distributions reflect an order occurrence interval);

[Claim 16] wherein the ratio of number of orders is a ratio of the number of orders after order expired to the number of orders before order expired (This limitation further limits one of the alternatives recited in claim 14, i.e., "a ratio of number of orders."

McConnell addresses the first alternative of "an order occurrence interval" in claim 14; therefore, McConnell does not expressly need to address the alternative limitation of claim 16);

[Claim 17] wherein the ratio of number of orders is a ratio of the number of orders after order expired to the number of orders before order expired (This limitation further limits one of the alternatives recited in claim 15, i.e., "a ratio of number of orders."

McConnell addresses the first alternative of "an order occurrence interval" in claim 15; therefore, McConnell does not expressly need to address the alternative limitation of claim 17).

As per claim 12, McConnell does not expressly teach the use of Monte Carlo simulation based on the calculated order occurrence probability distributions to determine occurrence rate probability distributions of number of orders during a predetermined period; however, Official Notice is taken that it is old and well-known in the art of modeling that Monte Carlo simulations are especially useful in validating the accuracy of other forecasting techniques, especially when large amounts of data need to be processed, thereby increasing confidence in forecast results. McConnell

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discusses use of a Poisson model (¶¶ 85, 87) and Price's article addresses the use of Monte Carlo simulation in conjunction with a Poisson distribution pattern to compare forecasting methods for very low demand items (abstract), thereby indicating the collaborative nature of Monte Carlo simulation and Poisson models; therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify McConnell to expressly incorporate Monte Carlo simulation means for carrying out Monte Carlo simulation based on the calculated order occurrence probability distributions to determine occurrence rate probability distributions of number of orders during a predetermined period in order to provide a tool for validating the accuracy of McConnell's forecasting techniques, especially when large amounts of data need to be processed, thereby increasing confidence in the forecast results.

[Claim 13] Claim 13 essentially recites most of the same limitations recited in claim 12, but applied to a second analysis corresponding to second low-order-rate parts; therefore, the same discussion from claim 12 applies to claim 13 as well, keeping in mind that McConnell performs the disclosed analysis for various types of items. For example, normal velocity of an item is gleaned based on data related to "similar but slower moving items" (¶ 144). Groups of items as well as individual items may be studied (¶¶ 156-162). Use of Monte Carlo simulation for the second analysis would have been obvious for the same reasons presented in the rejection of claim 12 above.

Furthermore, McConnell states, "In the first pass, the LOSS comes up with a crude estimate of normal velocity (referred to as the 'Initial Base Lambda') for each item having at least N observations, and uses this data to estimate normal velocity of similar but slower moving items" (§ 144). The indication of a velocity that corresponds to parts that are "slower moving" exemplifies "second low-order-rate parts whose order records show order rate to have fallen below a second predetermined level higher than said predetermined level."

Additionally, as described in McConnell, the Poisson model utilizes the type of data commonly used in a regression analysis such as time and expected activity over time intervals, as seen in §§ 85-87, 125-140. McConnell does not expressly state that regression analysis is used *per se*; however, Official Notice is taken that it is old and well-known in the art of statistical modeling to perform regression analysis as an effective forecasting technique. As a matter of fact, McConnell utilizes Poisson models and the Examiner submits that the use of Poisson regression models are old and well-known in the art of statistical modeling. Regression analysis is especially useful in effectively predicting the output of a dependent variable based on the interactions of other related variables, the general concept of which is disclosed in §§ 85-87, 125-140 of McConnell (without using regression analysis *per se*). Therefore, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify McConnell to incorporate regression analysis for forecasting the future number of orders of the second low order-rate parts in order to

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provide efficient means for predicting the behavior of a dependent variable (e.g., future number of orders of the second low-order-rate parts) based on the various variables set forth in ¶¶ 85-87, 125-140 of McConnell, such as order records before order rate fell below the second predetermined level and the calculated number of orders (¶¶ 40, 62, 68, 71, 74, 82, 84, 140, 144).

[Claim 21] McConnell does not expressly teach a checking means for checking accuracy of the forecast number of orders and a changing means for changing the categories based on a result of checking. However, McConnell does train and retrain its models (abstract, ¶¶ 15, 17, 87). Official Notice is taken that it is old and well-known in the art of training models to check the accuracy of a model and revise the model, as needed, in order to improve the accuracy of the model. Since the success of McConnell's invention largely depends on the reliability of its trained models, the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify McConnell to incorporate a checking means for checking accuracy of the forecast number of orders and a changing means for changing the categories based on a result of checking in order to improve the accuracy of the utilized models.

[Claims 18-20, 22] Claims 18-20 and 22 recite limitations already addressed by the rejection of claims 12-17 and 21 above; therefore, the same rejection applies.

Additionally, regarding claim 18, while McConnell does not expressly teach that the order occurrence probability distribution is determined as a function of a ratio of number of orders, McConnell identifies sales events in terms of an expected change in sales velocity, e.g., items are selling too slowly or too fast (¶¶ 40, 62, 68, 71, 74, 84). Official Notice is taken that it is old and well-known in the art of sales management to identify changes in sales velocity in terms of a percent change in sales. A percent change is effectively a ratio used to describe a rate of change quantitatively. For example, sales have decreased by 5% or sales increased by 10% in relation to x sales period are both examples in which ratios are used to express a number of orders. Ratios are often used to put changes into better perspective. For example, if a store is used to selling 100 units of item A per week and 2 units of item B per week, a decrease of 1 unit of each respective item sold in a subsequent week might trigger greater cause for concern with item B since sales of item B would have dropped by 50% while sales of item A would only have dropped 1%. Since McConnell assesses a rate of change of sales for various types of items (including both fast and slow moving items), the Examiner submits that it would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify McConnell to measure its sales velocities for forecasting purposes in terms of a ratio in order to put any changes in sales into better perspective for each respective item analysis, thereby yielding more reasonable interpretations of analyses for each of the items.

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[Claims 1-6, 10] Claims 1-6 and 10 recite limitations already addressed by the rejection of claims 12-17 and 21 above; therefore, the same rejection applies.

[Claims 7-9, 11] Claims 7-9 and 11 recite limitations already addressed by the rejection of claims 12-22 above; therefore, the same rejection applies.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Altioik, Tayfur. "(R, r) Production/Inventory Systems." Operations Research, vol. 37, no. 2, pages 266-276, March/April 1989 -- Discusses the use of probability distribution to manage inventory levels.

Walker, John. "Decision Support for the Single-Period Inventory Problem." Industrial Management + Data Systems, vol. 100, no. 2, page 61-6, 2000 -- Discusses the use of probability distribution functions for addressing inventory problems.

Razi, Muhammad Abdullah-Al. "Periodic Review Inventory Control Model for Slow Moving Spare Parts" (abstract). Dissertation Abstracts International, vol. 60/06-A, page 2127, 1999 -- Discusses inventory models for slow moving spare parts.

Keaton, Mark. "Using the Gamma Distribution to Model Demand When Lead Time is Random." Journal of Business Logistics, vol. 16, no. 1, 1995 -- Discusses forecasting of lead time for an item when demand is random.

Heuts et al. "A Combined Forecast-Inventory Control Procedure for Spare Parts." Presented at the Conference on Flexible Automation & Intelligent Manufacturing (FAIM

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'99) -- Discusses the use of Monte Carlo simulation in forecasting related to spare part inventories.

Keaton, Mark. "Determining Reorder Points When Lead Time is Random: A Spreadsheet Implementation." *Production and Inventory Management Journal*, First Quarter, 1995 -- Discusses demand forecasting when lead time is random.

Palmer, Michael. "Get It Right: Use Monte Carlo Simulation When Projecting Hotel Construction Loans." *The Journal of Lending & Credit Risk Management*, vol. 81, no. 5, page 38(7), January 1999 -- Discusses the benefits of Monte Carlo simulation.

"Poisson Regression" definition retrieved from the Wikipedia web site on June 7, 2006 [URL: http://en.wikipedia.org/wiki/Poisson_regression] -- Provides background on Poisson regression.

"Regression Analysis" definition retrieved from the Wikipedia web site on June 7, 2006 [URL: http://en.wikipedia.org/wiki/Regression_analysis] -- Provides background on regression analysis.

"Regression Analysis" definition retrieved from the 12Manage web site on June 7, 2006 [URL: http://www.12manage.com/methods_regression_analysis.html] -- Provides background on regression analysis.

"Monte Carlo method" definition retrieved from the Wikipedia web site on June 5, 2006 [URL: http://en.wikipedia.org/wiki/Monte_Carlo_method] -- Provides background on Monte Carlo methods.

"Monte Carlo simulation" definition retrieved from the Decisioneering web site on June 5, 2006 [URL: <http://www.decisioneering.com/monte-carlo-simulation.html>] -- Provides background on Monte Carlo simulation.

Beyer et al. (U.S. Patent No. 6,978,249) -- Discloses a profile-based product demand forecasting system.

Kalyan et al. (U.S. Patent No. 6,826,538) -- Discloses a method for planning key component purchases to optimize revenue.

Cheng et al. (US 2005/0283412) -- Discloses a demand forecasting system that utilizes Monte Carlo simulation.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susanna M. Diaz whose telephone number is (571) 272-6733. The examiner can normally be reached on Monday-Friday, 10 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Susanna M. Diaz
Primary Examiner
Art Unit 3623

June 7, 2006